POSTER

TCT-442

Percutaneous Coronary Intervention for Acute Coronary Syndromes in Centers with and without Onsite Cardiac Surgery. Analysis from PL-ACS Registry

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Background: Since the emergency coronary artery bypass grafting surgeries are rare, the need for a surgical backup is becoming debatable, therefore the purpose of the study is to compare outcomes of patients with acute coronary syndromes (ACS) in centers with and without the surgical backup onsite.
Methods: The 49 848 patients (with ACS were treated between 10.2003 and 11.2006 in centers without surgical backup (40 hospitals) and with surgical backup (17 hospitals).
Results (table): Patients treated in the centers with surgical backup were at higher clinical risk. The in-hospital mortality was higher in centers with surgical backup irrespective of ACS type (STE-ACS and NSTE-ACS). In multivariate analysis, no significant differences were observed between centers in patients with STE-ACS (Odds Ratio = 1.01; 95% CI = 0.87-1.16; p=0.93) in terms of in-hospital mortality. A trend toward favorable outcome was observed in NSTE-ACS patients in centers without surgical backup (Odds Ratio = 0.78; 95% CI = 0.59-1.02; p=0.070).

	NSTE-ACS			STE-ACS		
	Without surgical backup	With surgical backup	P value	Without surgical backup	With surgical backup	P value
N	8 562	9 278		8 996	14 012	
Age	63.0±10.5	63.8±10.6	<0.0001	61.7±11.3	61.8±11.6	0.47
Woman	33.3%	32.7%	0.39	29.8%	30.5%	0.33
Diabetes mellitus	20.6%	24.3%	<0.0001	16.5%	20.3%	<0.0001
Prior myocardial infarction	30.3%	32.8%	0.0003	11.2%	14.7%	<0.0001
Killip 3/4	1.8%	3.0%	<0.0001	6.5%	7.8%	0.0001
Positive necrosis markers	44.6%	50.7%	<0.0001	100%	100%	1.0
In-hospital outcomes						
Death	1.1%	1.8%	<0.0001	4.4%	4.9%	0.051
Myocardial infarction	1.7%	1.9%	0.42	2.5%	2.1%	0.089
Stroke	0.2%	0.2%	0.45	0.4%	0.5%	0.56
Major bleading	0.3%	0.6%	0.014	0.8%	0.9%	0.45

Conclusions: Early invasive strategy applied in hospitals without cardiac surgery backup is not associated with a higher risk of adverse outcomes.1

TCT-443

Atorvastatin Pretreatment and Infarct Size in Patients with ST-Segment Elevation Myocardial Infarction Undergoing Primary Percutaneous Coronary Intervention

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Background: Atorvastatin pretreatment has been reported to reduce myocardial damage in patients undergoing percutaneous coronary intervention (PCI). However, the effect of atorvastatin pretreatment on infarct size is not known in patients with ST-segment elevation myocardial infarction (STEMI).
Methods and Results: Patients undergoing primary PCI for ST-segment elevation myocardial infarction within 12 hours after symptom onset were randomized to an atorvastatin group [80 mg before PCI and for 5 days after PCI (n=89)] or to a control group (n=84). The primary endpoint was infarct size measured by Tc-99m tetrofosmin single photon emission computed tomography (SPECT) between days 5 and 14. The secondary endpoints included myocardial blush grade, ST-segment resolution (STR) at 60 minutes after PCI, and death or heart failure at 6 months. Baseline clinical, angiographic, and procedural characteristics were not significantly different between groups. Infarct size was similar in both groups (22.2±15.5% in atorvastatin group versus 21.6±15.4% in control group, P=0.79). Achievement of myocardial blush grade 2/3 and complete STR (>70%) was not significantly different in both groups (73.6% versus 81.5%, P=0.22 and 43.2% versus 47.5%, P=0.57, respectively). At 6 months, incidence of death or heart failure was not significantly different in both groups (7.9% in atorvastatin group versus 13.1% in control group, P=0.26).
Conclusions: Pretreatment with high dose of atorvastatin followed by 5-day further treatment did not reduce infarct size measured by SPECT in patients undergoing primary PCI.

TCT-444

Impact Of Culprit Lesion Intrathrombus Calcium In Acute ST Elevation Myocardial Infarction; A Virtual Histology Intravascular Ultrasound Analysis

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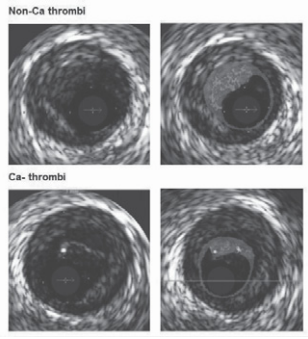
Pathologic studies have been suggested that atherosclerotic components are often included within thrombi in infarct related arteries (IRA). Virtual Histology-Intravascular Ultrasound (VH-IVUS) misclassifies thrombus as either fibrotic or fibrofatty plaque. Conversely, the predictive accuracy of VH-IVUS detection of dense calcium (Ca) is high.
Methods: We used VH-IVUS to assess the presence of Ca within intraluminal thrombi in 50 pts with acute ST elevation myocardial infarction (STEMI). VH-TCFAs were defined as necrotic core (NC) >10% of plaque area, plaque burden >40%, and NC in contact with the lumen for ≥3 image slices. Remodeling index (RI) was lesion/reference external elastic membrane >1.05.
Results: Using VH-IVUS imaging, thrombi were divided into 2 groups (Table): Ca-containing intraluminal thrombi (18 pts) and thrombi without Ca (32 pts). Calcified intraluminal thrombi were located in 9 LAD, 2 LCX, and 7 RCA. Vessel size, lesion length, plaque burden, minimal lumen area, and positive remodeling were similar in the two groups (data not shown). However, a VH-TCFA was present adjacent to 43% (14/32) of Ca-thrombi vs 22% (4/18) of thrombi without Ca (p=0.063). Importantly, post-PCI peak troponin was higher in the setting of Ca-thrombi (551.56± 589.97 ng/ml) vs 251.18±273.36 ng/ml in thrombi without Ca, p=0.027.



Conclusion: Ca is present within 40% of IRA thrombi in pts with STEMI. These Ca-containing thrombi appear to be at increased risk of distal embolization during PCI.

TCT-445

Comparison of Outcomes of Patients Treated Within Hours Versus Out-of-hours by PPCI for STEMI

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Background: Primary percutaneous coronary intervention (PPCI) is the treatment of choice for STEMI provided PPCI is performed in a timely manner. There is conflicting data regarding the outcomes of patients treated in-hours vs out of-hours, we sought to determine whether in-hospital and long-term outcomes are different among in-hours vs out of hours PPCI patients.
Methods: Clinical information was analysed from a prospective database on 1692 STEMI patients who underwent PPCI between January 2004 and March 2009 at a London centre. Information was entered at the time of procedure and outcome assessed by all-cause mortality information provided by the Office of National Statistics via the BCIS/CCAD national audit. In hours (IH) was defined as PPCI occurring on weekdays from 0800-1700 and out of hours (OFH) was defined as PPCI occurring from 1701-0759 during weekdays and anytime on weekends.
Results: Of the 1692 patients in the study, 46% (779/1692) underwent out of hours PPCI and 54% (913/1692) in hours. There were no differences in baseline clinical or angiographic characteristics between the two groups. In the overall study group, door-to-balloon times (D2B) were not different (66 min ± 26 vs 68 min ± 34, p=0.77). The out of hours patients tended to present later with significantly longer symptom to balloon times (p=0.007). There was a significant difference in MACE between the two groups in favour of those patients treated in hours (7% OFH v 4% IH, p=0.03) at 30 days, at 1 year (12% OFH v 7% IH, p=0.002] and at 3 years (13% vs 9%, p=0.02) MACE was driven by increase in mortality, MI and TVR in the out of hours group.
Conclusions: STEMI patients have worse clinical outcomes if treated out of hours by PPCI. This observation does not appear related to PCI centre door to balloon times. Further research is needed to understand and improve the causes of the worse outcomes out of hours.
Figure 1.